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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,471	10/25/2001	Mehran M. Khodadoust	50200/002003	6131
21559	7590	04/08/2004	EXAMINER	
CLARK & ELBING LLP 101 FEDERAL STREET BOSTON, MA 02110			LAMBERTSON, DAVID A	
			ART UNIT	PAPER NUMBER
			1636	

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

814

# Office Action Summary

Application No.

10/029,471

Applicant(s)

KHODADOUST, MEHRAN M.

Examiner

David A. Lambertson

Art Unit

1636

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-78 is/are pending in the application.
- 4a) Of the above claim(s) 1-52 and 69-78 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 53,56 and 58-68 is/are rejected.
- 7) ☒ Claim(s) 54,55 and 57 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group X (claims 53-68) in the response filed December 15, 2003 is acknowledged.

Claims 1-52 and 69-78 are withdrawn from consideration as being drawn to a non-elected invention. Claims 53-68 are under examination in the instant Office Action.

### ***Priority***

Applicant's claim for domestic priority to US Applications 09/908,305 and 09/697,843 under 35 U.S.C. 120 is acknowledged.

### ***Information Disclosure Statement***

The information disclosure statements filed May 31, 2002 and July 21, 2003 have been considered, and a signed and initialed copy of the form Pto-1449s have been attached to this Office Action.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1636

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 62, 63 and 65-68 are rejected under 35 U.S.C. 102(a) as being anticipated by Lukacsovich *et al.* (IDS reference WO 99/61604; see entire document; henceforth Lukacsovich).

Lukacsovich teaches a gene trap vector comprising the following structures: (a) a splice acceptor site and (b) a positive selection marker (i.e., neomycin resistance gene) that is operably linked to a prokaryotic heat shock promoter (see for example Figure 5 and page 3, lines 1-15). Significantly, Lukacsovich teaches transforming this vector into *Drosophila*, where the vector enters the cell and integrates into the host cell genome (see for example page 3, line 29, to page 4, line 12). It is noted that in order to transform the organism, one must inevitably transform a cell (in fact, many cells) with the vector. Since the vector integrates into the genome of the host cell, it must necessarily comprise an integration sequence. Furthermore, all cells are inherently responsive to at least one stimulatory agent, such as a hormone, therefore this limitation is also met. As such, the aforementioned claims are anticipated by the claimed invention.

Claims 53, 56, 59, 62, 63 and 65-67 are rejected under 35 U.S.C. 102(a) as being anticipated by Mainguy *et al.* (IDS reference; see entire document; henceforth Mainguy).

Mainguy teaches a vector called PT2, which comprises the following elements: (a) a splice acceptor site; (b) the lacZ reporter gene, which is not operably linked to a promoter; (c) an IRES; (d) the negative selection marker Tk (thymidine kinase), followed by a polyadenylation

Art Unit: 1636

sequence; and (e) a prokaryotic promoter (from the PGK gene) operably linked to a positive selection marker (neomycin resistance gene) and followed by a polyadenylation sequence (see for example Figure 1). Mainguy teaches transforming embryonic stem cells with the vector, where the cells are selected following the integration of the vector into the genome (see the entire document); this indicates that the vector necessarily contains an integration sequence. Furthermore, the embryonic stem cells are responsive to stimulatory agents such as growth hormones. As such, the aforementioned claims are anticipated by the claimed invention.

Claims 60, 63 and 66-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Brent *et al.* (US 5,695,941; see entire document; henceforth Brent).

In one embodiment, Brent teaches a two-hybrid vector comprising the following elements: (a) a DNA binding domain in frame with a "bait" protein (i.e., collectively a transactivator polypeptide); a reporter protein such as lacZ; (c) a positive selection marker for the selection of transformants containing the vector (such as the TRP1 or HIS3 genes-see for instance the selection scheme of Figure #1); and (d) a negative selection marker, such as the URA3 gene (sensitivity to 5-FOA (5-fluoroorotic acid) can be used as a negative selection for the presence of the URA 3 gene, thereby satisfying the requirements of a negative selection marker)(see for example Figure 1 and column 5, line 9 to column 6, line 28). Brent further teaches transforming yeast host cells with the construct, and these host cells are responsive to stimulatory agents such as mating hormones (see for example column 8, line 15-62). Significantly, the reporter protein, lacZ, can be operatively linked to a response element that is responsive to the transactivator polypeptide, and can be integrated into the chromosome of the

Art Unit: 1636

host cell (see for example, column 5, 53-61). When the lacZ gene is integrated into the chromosome of the host cell, it represents a second nucleic acid including a promoter operably linked to a responsive element that is responsive to the transactivator polypeptide. The additional presence of the above vector (i.e., the first nucleic acid), now lacking the reporter protein, thus anticipates claim 68. As such, the aforementioned claims are anticipated by the claimed invention.

Claims 53, 56, 58, 59 and 61-67 are rejected under 35 U.S.C. 102(e) as being anticipated by Soriano et al. (US 6,461,864; see entire document; henceforth Soriano).

Soriano teaches the use of retroviral gene trap vectors (see for example column 1, lines 32-54). A particular vector that is taught comprises: (a) a splice acceptor site; (b) an IRES linked to a recombinase (i.e., a reporter gene), further linked to a polyA sequence; and (c) a "positive selection cassette" (see for example column 8, lines 20-26). Significantly, the recombinase is not operably linked to a promoter, and technically constitutes a reporter in that it can be detected. Importantly, the "positive selection cassette" (see for example column 8, lines 27-31) comprises a prokaryotic promoter (e.g., PGK) operably linked to a positive selection marker (e.g., neomycin resistance gene). Soriano further teaches that it is desirable to include a "negative selection cassette" in order to reduce the background of cells having incorrectly integrated constructs (see for example column 14, lines 37-52). Importantly, the "negative selection cassette" includes a negative selection marker (such as Diphtheria toxin) that is operatively linked to a promoter (see for example column 14, lines 20-30). The vector can further comprise a "reporter cassette" comprising a reporter gene that is flanked by recombinase recognition (signal)

Art Unit: 1636

sequences (see for example column 8, lines 32-39 and column 14, lines 53-65). Soriano teaches using such a vector to transform host cells, where the vector integrates (through integration sequences) into the genome of the cell (see for example column 2, lines 19-45). As such, Soriano anticipates each of the aforementioned claims.

*Allowable Subject Matter*

Claims 54, 55 and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Lambertson whose telephone number is (571) 272-0771. The examiner can normally be reached on 6:30am to 4pm, Mon.-Fri., first Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, Ph.D. can be reached on (571) 272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1636

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David A. Lambertson, Ph.D.  
AU 1636

JAMES KETTER  
PRIMARY EXAMINER